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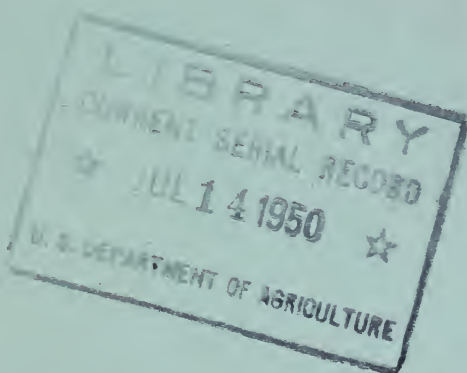
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PHONY DISEASE of PEACHES

ITS CAUSE and CONTROL



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PHONY DISEASE OF PEACHES

Its Cause and Control

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Since its first appearance in the United States, phony peach disease, caused by an infectious virus, has ruined more than 2,600,000 peach trees. Considering the productive capacity of the trees lost and their replacement cost, a conservative estimate of the damage already caused by the disease is in excess of \$75,000,000.

The disorder was first noticed in a Georgia orchard about 1890. By 1920 it was sufficiently prevalent in an area of approximately 300 square miles to be a cause of alarm. By 1936, surveys showed the presence of the disease in 17 southeastern States, the northern limits of distribution reaching Illinois and Pennsylvania and the western as far as Texas.

Only a few affected trees were found in most of the northern States, and apparently the disease has been eliminated from several of them. In fact, except for localized areas, extremely severe damage by the disease has been limited to the commercial districts of Alabama and Georgia. There are limited areas of commercial production in South Carolina, Mississippi, Louisiana, and Texas, where losses have varied from moderate to severe.

Although they are not yet completely understood, there are undoubtedly factors that particularly favor the development of the disease in the general

latitude of the Gulf States. More rapid spread and development of the disease to the point of economic damage may always be expected in sections of the infected area having higher peach tree populations, that is, in localities having numerous orchards of commercial size planted close together.

Phony disease does not kill trees, but ruins their productive capacity and hence their commercial usefulness. In individual trees the infection results in pronounced dwarfing. The length of annual terminal growth is greatly reduced, the distance between leaves and between branches is shortened, and there is profuse lateral branching toward the tips. Leaves become straightened and flattened, and the color of the foliage changes from a normal light green to a much darker green. The shortened growth sharply reduces the number of fruit buds and hence the amount of fruit set, and the size of the fruit is also reduced. All these symptoms are mild during the first season in which a tree shows evidence of the disease, but become progressively more pronounced, so that a tree is completely ruined within a few years.

Manner of Transmission

The virus that causes phony peach is spread by insects, which suck up the virus with the sap of a sick tree and then inject it into a healthy tree. Four

species of insects^{1/} are known to be able to spread phony peach in this manner, and there is proof that at least two of them are doing so in peach orchards.

The insects that spread phony peach are all medium-sized or large leafhoppers that feed on stems instead of leaves. Some of them are sometimes called sharpshooters. They are all general feeders. All four feed on peach at times, and the two known to spread phony peach in orchards visit peach trees in numbers in the spring and fall, when they apparently prefer woody plants as a source of food. Not much is known about their flying habits, or about how far they can fly, but they appear to be strong flyers and probably they can travel for considerable distances if necessary.

Control

Leafhoppers may be killed with DDT spray, but it would be difficult to wipe out or even reduce materially the total numbers of those which spread phony peach. To do so it would be necessary to treat large areas containing diverse crops, abandoned fields, woods, and city yards. The most that can be hoped for is the discovery of some means of preventing

^{1/} Homalodisca triquetra (F.), Oncometopis undaga (F.), Cuernacostalis (F.), Graphocephala versuta (Say).

the leafhoppers from picking up the virus in peach orchards and spreading it to other trees.

Experiments are now being carried on to find out whether the use of DDT sprays in the spring and fall, when the leafhoppers are most abundant on peach trees, will retard the rate of spread of the disease. The outlook is hopeful, but progress in this work is slow because peach trees do not show symptoms until about 2 years after they first contract phony peach.

An insecticidal treatment that will reduce the number of new cases of phony peach appearing each year should be very beneficial, but it is doubtful whether even the most effective spray or dust program would ever eliminate the necessity for finding all infected trees each year and destroying them. Phony disease can be controlled by careful annual inspections of the orchards, followed by the removal of all infected trees that can be found. In the more heavily planted areas it is necessary that all orchards be inspected if severe loss is to be prevented.

This method of control will not eliminate the disease from severely affected commercial areas, but will make it possible to grow peaches profitably. Where such control is not practiced, heavy losses are certain to occur and they may reach such proportions that profitable peach production will no longer be possible.

Infected nursery stock might spread phony disease over wide areas, but this danger has been almost completely

eliminated by the eradication of the disease from the more important nursery areas. Measures are taken to protect nurseries located in States or areas where the disease still occurs.

Phony disease is also found in wild plums in the generally infected areas, and the presence of large plum thickets near peach orchards is dangerous. Since diseased plums do not always show visible symptoms, all the affected bushes cannot be found. For this reason, it seems wise for peach growers to destroy all wild plum thickets near their orchards.

